

sound absorption coefficients

of architectural
acoustical materials



ACOUSTICAL MATERIALS ASSOCIATION

BULLETIN XIV • 1953

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THE ACOUSTICAL MATERIALS ASSOCIATION

The Acoustical Materials Association is an organization formed by producers of architectural acoustical materials for the purpose of furnishing architects and others with reliable technical data on sound absorbing materials and their uses.

All producers of such materials are invited to apply for membership in the Association.

This bulletin is published periodically so that up-to-date information on products of Association members is readily available. Interim reports may be made from time to time as new materials are introduced and tested, and will appear on the Association letterhead.

"Theory and Use of Architectural Acoustical Materials": a twenty page illustrated pamphlet with charts, tables, bibliography and practical solutions for many sound control problems, written for use by architects and engineers and the layman, is available from the Association, at the address listed at the bottom of this page, for 25c per copy.

MEMBERS

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300 West Adams Street
Chicago 6, Illinois

Information regarding the Association and its activities can be obtained from the members, their local representatives or by addressing Acoustical Materials Association, 59 E. 55th St., New York 22, N. Y.

EXPLANATION OF TABLES

Tables on following pages are of two kinds. Summary Tables on Pages 5 to 7 classify materials according to appearance and composition. Producers' Tables follow the Summary Tables on Pages 9 to 19 and contain all the listed acoustical materials of each member company and detailed data on them. The contents of the tables are explained below.

SUMMARY TABLES

For the convenience of architects and purchasers, materials in these tables are grouped irrespective of the name of the producer. Knowing the general appearance, composition and thickness of material desired, the various products meeting these specifications can be easily located. An explanation of the table is given below.

TYPE CLASSIFICATION

Because appearance and composition are often the primary consideration, each table (except Table 11) contains products which are essentially similar in these respects:

<i>Table No.</i>	<i>Type</i>	<i>Description</i>	<i>Page No.</i>
1	I	Perforated Cellulose Fiber Tile.....	5
2	II	Slotted Cellulose Fiber Tile.....	5
3	III	Textured or Fissured Cellulose Tile.....	5
4	IV	Perforated Mineral Tile.....	5
5	V	Fissured Mineral Tile.....	6
6	VI	Textured or Smooth Mineral Tile	6
7	VII	Membrane Faced Mineral Tile and Board.....	6
8	VIII	Perforated Metal Pans with Mineral Fiber Pads.....	6
9	IX	Perforated Asbestos Board Panels, Mineral Fiber Pads.....	7
10	X	Sound Absorbent Duct Lining.....	7
11	XI	Special Acoustical Panels and Systems.....	7

THICKNESS

In each table, except Table 11, the available thicknesses are given because products are usually considered on a thickness basis in architectural design. Unless otherwise indicated by

footnotes, the thickness given is the nominal thickness of the material as designated by the producer.

PRODUCER TABLES

All data listed are on currently manufactured material, selected according to an official sampling procedure, and each member company is pledged to maintain the efficiency of the products as listed.

The column headings and the meaning of the data contained therein are given below.

THICKNESS

Unless otherwise indicated, the thickness given is the nominal thickness of the material as indicated by the producer. Actual thickness

may vary slightly from the nominal according to the producer's own manufacturing specifications.

FLAME RESISTANCE

Many of the materials listed in this bulletin have been tested for flame resistance by Armour Research Foundation using a method essentially like that described in Federal Specification SS-A-118a. The ratings listed are explained in accordance with the terminology of the specification as follows:

- A—Incombustible
- B—Fire Retardant
- C—Slow Burning
- D—Combustible

For the flame resistance tests for which ratings

are shown in this bulletin, materials were mounted by bolting them directly to an asbestos-cement board panel.

The indiscriminate use of terms such as "fire-proof", "fire-resistant", "flame-proof", etc., in specifications has created confusion among architects, consumers and the public. By adopting the above letter designation for various degrees of flame resistance, as determined by a recognized standard test method, the Association hopes to aid the architect in specifying the type of material required.

LIGHT REFLECTION

All light reflection values listed in this bulletin are from tests conducted at the Association's official laboratory with a type of reflectometer known as the "Baumgartner sphere" and described in the Transactions of the Illuminating Engineering Society, Vol. 33, page 379 (1938). Average samples are selected by

laboratory personnel from factory-painted material submitted for sound absorption tests. Each value listed is the average of five tests on three different samples.

Unless otherwise indicated the light reflection value given is for a finish designated as "white".

SURFACE

The general appearance and composition of materials is indicated by the type classification in the Summary Tables. This column gives further details, particularly on perforations and painted surfaces. The diameter given for

perforations is the diameter of the punch or drill used in forming them. Sound absorption tests for each material were made with the surface finish indicated in this column.

MOUNTING

The types of mounting for which sound absorption data are listed are illustrated by the drawings on page 8. The sound absorption of

most materials varies with the method of mounting.

COEFFICIENTS

The sound absorption coefficient of a material is a measure of its efficiency as a sound absorbent which will serve as a basis for computations of reverberation times and of noise reduction.

The tables of coefficients presented in the following pages give the results of tests all made under identical conditions in one laboratory. Sound absorption coefficients are customarily reported and published for the six frequencies—each an octave apart—from 125

cycles per second, to 4,000 cycles per second, inclusive.

The test data contained herein have all been obtained under identical conditions and are, therefore, comparable. The Association does not wish to discredit other data but, recognizing the confusing and misleading differences which have existed in the past, believes that a single set of values obtained under identical conditions is preferable.

NRC — NOISE REDUCTION COEFFICIENT

To obtain a single figure for a material which may be used as an index of its noise reducing efficiency it has been customary to average arithmetically the coefficients from 250 to 2,000 cycles, inclusive, and call this the Noise Reduction Coefficient (NRC). The NRC is usually expressed to the nearest multiple of .05 coefficient.

Because of the empirical basis on which the

NRC is calculated, it is the opinion of the Association that minor differences in NRC values should not be overemphasized. A 10 point difference in NRC values is seldom detectable in a completed installation and it is recommended that architects specify an NRC range of 10 points (for example .50 to .60) if they wish to entertain bids on the various competitive products of any one type.

UNIT SIZE TESTED

The size given is the size of the units on which sound absorption tests were made. Other sizes are frequently available and, in most cases,

sound absorption coefficients can be assumed to be the same.

WEIGHT

The weight of the material is given to identify the sample tested and also because it may

be of interest in structural considerations.

SUMMARY TABLES

Table No. 1
TYPE I MATERIALS—Perforated Cellulose Fiber Tile

Thickness Available					Material	Producer	Details on page
1/2"	5/8"	3/4"	1"	1 1/4"	Acousti-Celotex, C-Series	The Celotex Corp.	10
1/2"	5/8"	3/4"			Acoustifibre	National Gypsum Co.	15
1/2"		3/4"	1"		Auditone Perforated	United States Gypsum Co.	19
1/2"		3/4"	1"		Cushiontone	Armstrong Cork Co.	9
1/2"		3/4"	1"		Fibre-tone	Johns-Manville Sales Corp.	14
1/2"	5/8"	3/4"	1"		Fir-Tex Perforated	Dant & Russell Sales Co.	11
1/2"		3/4"	1"	1 1/4"	Flintkote Acoustical Tile Type RS	Pioneer Division—The Flintkote Co.	17
1/2"	5/8"	3/4"	1"		Simpson Acoustical Tile	Simpson Logging Co.	18

Table No. 2
TYPE II MATERIALS—Slotted Cellulose Fiber Tile

Thickness Available		Material	Producer	Details on page
3/4"	1"	Auditone Slotted	United States Gypsum Co.	19

Table No. 3
TYPE III MATERIALS—Textured or Fissured Cellulose Tile

Thickness Available		Material	Producer	Details on page
1/2"	1 1/4"	Corkoustic	Armstrong Cork Co.	9
		Econacoustic	National Gypsum Co.	15

Table No. 4
TYPE IV MATERIALS—Perforated Mineral Tile

Thickness Available				Material	Producer	Details on page
1/2"	5/8"		1"	Acousti-Celotex, M-Series	The Celotex Corp.	10
		3/4"	1"	Certile Perforated	Certain-teed Products Corp.	11
		3/4"		Fiberglas Acoustical Tile Type PRW	Owens-Corning Fiberglas Corp.	16

SUMMARY TABLES

Table No. 5
TYPE V MATERIALS—Fissured Mineral Tile

Thickness Available				Material	Producer	Details on page
11/16"			7/8"	Acoustone F	United States Gypsum Co.	19
11/16"		13/16"		Celotone	The Celotex Corp.	10
	3/4"			Permacoustic	Johns-Manville Sales Corp.	14
11/16"				Simpson Fissured Mineral Tile	Simpson Logging Co.	18
11/16"		13/16"	7/8"	Travacoustic	National Gypsum Co.	15
11/16"		13/16"		Travertone	Armstrong Cork Co.	9

Table No. 6
TYPE VI MATERIALS—Textured or Smooth Mineral Tile

Thickness Available						Material	Producer	Details on page
		3/4"				Certile Plain	Certain-teed Products Corp.	11
		3/4"			1 1/4"	Fiberglas Ceiling Board	Owens-Corning Fiberglas Corp.	16
		3/4"				Fiberglas Acoustical Tile Type TXN	Owens-Corning Fiberglas Corp.	16
1/2"		3/4"		1"		Fiberglas Acoustical Tile Type TXW	Owens-Corning Fiberglas Corp.	16
	1 1/16"		7/8"			Motif'd Acoustone Pattern No. 19	United States Gypsum Co.	19

Table No. 7
TYPE VII MATERIALS—Membrane Faced Mineral Tile and Board

Thickness Available		Material	Producer	Details on page
	3/4"	Fiberglas Sonofaced Acoustical Tile	Owens-Corning Fiberglas Corp.	16
	3/4"	Fiberglas Sonofaced Ceiling Board	Owens-Corning Fiberglas Corp.	16

Table No. 8
TYPE VIII MATERIALS—Perforated Metal Pans with Mineral Fiber Pads

Thickness Available See Note	Material	Producer	Details on page
2 1/2"	Acousteel	The Celotex Corp.	10
2 1/2"	Acoustimetal	National Gypsum Co.	15
2 1/2"	Arrestone	Armstrong Cork Co.	9
2 1/2"	Flintkote Perforated Metal Acoustical Tile	Pioneer Division—The Flintkote Co.	17
2 1/2"	Perfatone	United States Gypsum Co.	19
2 1/2"	Sanacoustic	Johns-Manville Sales Corp.	14
2 1/2"	Sanacoustic 50/50	Johns-Manville Sales Corp.	14
2 1/2"	Simpson Metal Acoustical Units	Simpson Logging Co.	18

Note.—Thickness includes metal supports and furring.

SUMMARY TABLES

Table No. 9

TYPE IX MATERIALS—Perforated Asbestos Board Panels, Mineral Fiber Pads

Thickness Available See Note				Material	Producer	Details on page
1 ³ / ₁₆ "	1 ⁷ / ₁₆ "	2 ³ / ₁₆ "	3 ³ / ₁₆ "	Asbestos Board Panel	Armstrong Cork Co.	9
				Perforated Asbestos Board	United States Gypsum Co.	19
		2 ³ / ₁₆ "		Perforated Asbestos Board Panel	The Celotex Corp.	10
		2 ³ / ₁₆ "		Transite Acoustical Panel	Johns-Manville Sales Corp.	14

Note.—Thickness includes perforated facing, sound absorbing element and furring.

Table No. 10

TYPE X MATERIALS—Sound Absorbent Duct Lining

Thickness Available			Material	Producer	Details on page
1 ¹ / ₂ "	5 ⁵ / ₈ "	1"	Airacoustic	Johns-Manville Sales Corp.	14
		1"	Fiberglas Coated Duct Insulation	Owens-Corning Fiberglas Corp.	16
1 ¹ / ₂ "		1"	Q-T Ductliner	The Celotex Corp.	10

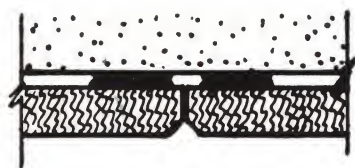
Table No. 11

TYPE XI MATERIALS—Special Acoustical Panels and Systems (Producer's literature should be consulted for details on special systems)

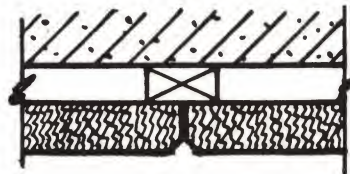
Material	Producer	Details on page
Acoustic Ceiling	E. F. Hauserman Co.	13
Acoustiwall	E. F. Hauserman Co.	13
Acousti-Line	The Celotex Corp.	10
Acoustone F, E-Z-S System	United States Gypsum Co.	19
Fenestra Acoustic Panels	Detroit Steel Products Co.	12
Simpson Acoustical Roof Slab	Simpson Logging Co.	18
Sound Isolation Blanket MK	Johns-Manville Sales Corp.	14
Sound Metal Acoustical Panels	Industrial Sound Control, Inc.	13

TYPES OF MOUNTING

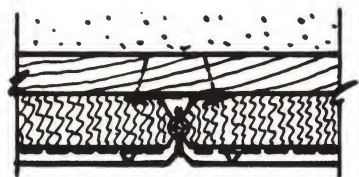
(Used in Conducting Sound Absorption Tests)



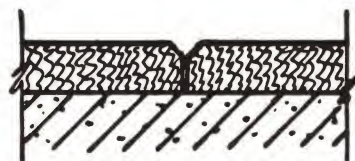
1. Cemented to plaster board. Considered equivalent to cementing to plaster or concrete ceiling.



2. Nailed to 1" x 3" wood furring 12" o.c. unless otherwise indicated.



3. Attached to metal supports applied to 1" x 3" wood furring.



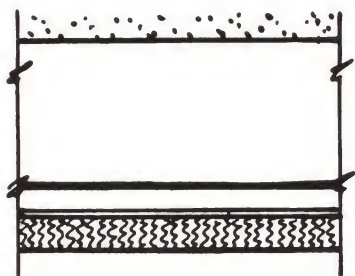
4. Laid directly on laboratory floor.



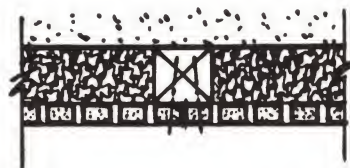
5. Nailed to 1" x 3" wood furring 24" o.c. and filled in between furring with 1" mineral wool.



6. Laid on 24 ga. sheet iron, nailed to 1" x 3" wood furring 24" o.c.



7. Mechanically mounted on special metal supports.



8. Nailed to 2" x 2" wood furring 24" o.c. 2" mineral wool between furring.

ARMSTRONG CORK COMPANY

MATERIAL	Thick-ness	Flame Resist-ance	Light Reflec-tion	SURFACE Superscript numbers refer to footnotes	Mount-ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
CUSHIONTONE	1/2"	C, D	.79	Perforated ¹ , painted ²	1	.03	.14	.56	.82	.79	.59	.60	12"x12"	.69	A53-9
					2	.03	.45	.54	.78	.77	.57	.65	12"x12"	.69	A53-8
	3/4"	C, D	.79	Same as above	1	.08	.28	.74	.76	.83	.79	.65	12"x12"	1.00	A52-135
					2	.09	.65	.61	.77	.77	.75	.70	12"x12"	1.00	A52-134
					7	.27	.44	.64	.83	.79	.73	.70	12"x12"	1.00	A52-219
	1"	C, D	.78	Same as above	1	.12	.25	.88	.99	.77	.56	.70	12"x12"	1.15	A52-270
					2	.20	.62	.79	.97	.79	.57	.80	12"x12"	1.15	A52-269
					2	.29	.55	.71	.87	.79	.68	.75	24"x24"	1.19	A52-115
					7	.41	.51	.77	.98	.78	.59	.75	12"x12"	1.15	A52-268
ARRESTONE	2 1/2"	A	.75	Perforated, enameled metal ³	3	.53	.67	.88	.99	.84	.65	.85	12"x24"	Pad .95	A52-167
TRAVERTONE	1 1/16"	A	.78	Fissured, painted	1	.06	.18	.70	.89	.88	.80	.65	12"x12"	1.21	A51-156
	1 3/16"	A	.75	Same as above	1	.03	.28	.84	.97	.85	.73	.75	12"x12"	1.50	A52-234
					7	.22	.60	.80	.88	.93	.79	.80	12"x12"	1.50	A52-233
CORKOUSTIC	1 1/4"	C	.76	Fissured, painted	1	.03	.06	.38	.81	.42	.49	.40	11 1/4"x11 1/4"	.53	A52-137
					7	.12	.55	.53	.37	.54	.59	.50	11 1/4"x11 1/4"	.64	A52-203
ASBESTOS BOARD PANEL	2 3/16"	A		Perforated ⁴ , unpainted	Note 5	.37	.60	.94	.72	.65	.47	.75	24"x24"	Pad .32	A52-159
	3 3/16"	A		Same as above	Note 6	.41	.76	.94	.69	.64	.51	.75	24"x24"	Pad .44	A52-160

NOTE 1. Perforated 529 holes per sq. ft., 3/16" diameter.

NOTE 2. Painted by manufacturer, two coats resin oil emulsion paint, face and bevels. Also available with factory applied paint finish which gives "C" flame-resistance rating.

NOTE 3. Perforated, enameled metal pan, backed with mineral wool sound absorbing pad. Perforations are .093" diameter, 1105 holes per sq. ft., bevels and flanges unperforated. Thickness includes furring.

NOTE 4. Asbestos board perforated 3/16" holes, spaced 1/2" on centers.

NOTE 5. 3/16" Perforated asbestos board panel backed with 2" Fiberglas. (See Note 7)

NOTE 6. 3/16" Perforated asbestos board panel backed with 3" Fiberglas. (See Note 7)

NOTE 7. Fiberglas is registered Trade Mark of Owens-Corning Fiberglas Corp.

THE CELOTEX CORPORATION

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE Superscript numbers refer to footnotes	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
ACOUSTI-CELOTEX Type C-1	1/2"	Note 8 C, D	.77	Perforated ¹ , painted ²	1 2	.03 .09	.21 .47	.58 .47	.69 .61	.66 .65	.70 .67	.55 .55	12"x12" 12"x12"	.75 .75	A52-259 A52-258
Type C-2	5/8"	C, D	.77	Same as above	1 2	.15 .13	.18 .44	.67 .65	.85 .80	.70 .71	.62 .75	.60 .65	12"x12" 12"x12"	.80 .80	A52-261 A52-260
Type C-9	3/4"	C, D	.77	Same as above	1 2	.08 .13	.21 .48	.74 .75	.98 .91	.74 .62	.85 .56	.65 .70	12"x12" 12"x12"	.95 .95	A52-263 A52-262
Type C-8	1"	C, D	.77	Same as above	1 2	.15 .25	.41 .55	.82 .72	.84 .80	.73 .72	.60 .56	.70 .70	12"x12" 12"x12"	1.45 1.45	A52-265 A52-264
Type C-7	1"		.77	Same as above	7	.36	.71	.82	.87	.72	.57	.80	12"x12"	1.33	A52-341
Type C-4	1 1/4"	C, D	.77	Same as above	1 2	.18 .18	.38 .49	.99 .99	.84 .82	.62 .62	.56 .52	.70 .75	12"x12" 12"x12"	1.50 1.50	A52-267 A52-266
ACOUSTI-CELOTEX Type M-1	5/8"	A	.77	Perforated ³ , painted ⁴	1	.09	.16	.52	.85	.98	.82	.65	12"x12"	1.47	A51-149
Type M-2	1"	A	.77	Same as above	1	.07	.21	.85	.98	.86	.78	.75	12"x12"	2.23	A51-157
Type M-7	1"		.77	Same as above	7	.39	.37	.74	.93	.98	.86	.75	12"x12"	2.32	A51-163
CELOTONE	1 1/16"	A	.74	Fissured, painted	1 7	.06 .31	.19 .57	.73 .68	.94 .76	.83 .82	.83 .76	.65 .70	12"x12" 12"x12"	1.19 1.37	A52-218 A52-353
	1 3/16"	A	.74	Same as above	1 7	.03 .33	.25 .78	.74 .74	.99 .81	.86 .86	.82 .82	.70 .80	12"x12" 12"x12"	1.41 1.22	A52-93 A52-340
ACOUSTI-LINE Type C-7	1"		.77	Perforated ¹ , painted ²	Note 7	.27	.61	.73	.76	.66	.52	.70	12"x24"	1.33	A52-359
Type M-7	1"		.77	Perforated ³ , painted ⁴	Note 7	.44	.46	.66	.96	.81	.75	.70	12"x24"	2.32	A52-65
Celotone	1 1/16"		.74	Fissured, painted	Note 7	.28	.64	.63	.68	.71	.62	.65	12"x12"	1.37	A52-354
Celotone	1 3/16"		.74	Same as above	Note 7	.20	.58	.74	.74	.74	.64	.70	12"x12"	1.22	A52-352
ACOUSTEEL	2 1/2"	A	.74	Perforated, enameled metal ⁵	3	.53	.60	.87	.98	.85	.68	.85	12"x24"	Pad 1.08	A52-77
Q-T DUCTLINER	1/2"	A		Smooth, unpainted	6	.04	.36	.38	.76	.80	.85	.60	24"x36"	.77	A52-272
	1"	A		Same as above	6	.37	.47	.74	.88	.86	.82	.75	24"x36"	1.36	A52-273
PERFORATED ASBES- TOS BOARD PANEL MK Rock Wool Blanket	1 3/16"	A		Perforated ⁶ , unpainted	5	.09	.22	.80	.99	.90	.76	.75	24"x24"	Pad 1.1	A52-22
MK Rock Wool Blanket	2 3/16"	A		Same as above	8	.21	.64	.97	.95	.91	.76	.85	24"x24"	Pad 2.2	A52-23

NOTE 1. Perforated 484 holes per sq. ft., 3/16" diameter, 1 1/2" on centers.

NOTE 2. No. 6 finish, a two-coat hot rolled finish applied before perforating.

NOTE 3. Perforated 676 holes per sq. ft., 1 1/4" diameter, 1/16" on centers.

NOTE 4. Painted after perforating.

NOTE 5. Perforated, enameled metal pan with mineral wool sound absorbing pad. Face perforated 676 holes per sq. ft., .125" diameter, 1/16" on centers. Flanges and bevels unperforated. Thickness includes furring.

NOTE 6. Asbestos board perforated 576 holes per sq. ft., 3/16" diameter, 1/2" on centers.

NOTE 7. Acousti-Line is an exposed 6" wide metal suspension system member spaced 30" on centers.

NOTE 8. All Acousti-Celotex C-Series products can be furnished with a flame-resisting oil base paint applied at factory after perforating. According to AMA Flame Resistance Test No. FR52-70, Type C-9 Acousti-Celotex, 3/4" thick, bolted to cement-asbestos board backing, with Duo-Tex Finish has a Class C rating. The light reflectance of the same sample, by AMA Test No. R52-101, is .80.

CERTAIN-TEED PRODUCTS CORPORATION

MATERIAL	Thick-ness	Flame Resist-ance	Light Reflec-tion	SURFACE Superscript numbers refer to footnotes	Mount-ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
CERTILE Perforated	3/4"	A	.81	Perforated ¹ , painted	1	.12	.11	.59	.99	.82	.59	.65	12"x12"	.82	A52-285
					7	.62	.82	.81	.90	.89	.70	.85	12"x24"	.83	A52-286
	1"	A	.80	Same as above	1	.03	.26	.91	.99	.79	.52	.75	12"x12"	1.02	A52-287
					7	.65	.71	.85	.92	.83	.55	.85	12"x24"	1.02	A52-288
CERTILE Plain	3/4"	A	.76	Textured, painted	1	.14	.16	.76	.97	.85	.77	.70	12"x12"	.80	A52-283
					7	.63	.71	.74	.81	.84	.70	.80	12"x24"	.80	A52-284

NOTE 1. Perforated 484 holes per sq. ft., 5/32" diameter.

DANT & RUSSELL SALES CO.

MATERIAL	Thick-ness	Flame Resist-ance	Light Reflec-tion	SURFACE Superscript numbers refer to footnotes	Mount-ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
FIR-TEX PERFORATED	1/2"	C, D	.76	Perforated ¹ , painted ²	1	.03	.15	.64	.83	.79	.77	.60	12"x12"	.71	A52-343
					2	.08	.42	.57	.75	.72	.75	.60	12"x12"	.71	A52-342
	5/8"	C, D	.74	Same as above	1	.06	.17	.69	.87	.78	.65	.65	12"x12"	.88	A52-345
					2	.10	.49	.63	.84	.80	.76	.70	12"x12"	.88	A52-344
	3/4"	C, D	.77	Same as above	1	.16	.32	.75	.86	.79	.46	.70	12"x12"	1.10	A53-35
					2	.18	.65	.65	.84	.77	.51	.75	12"x12"	1.10	A53-34
					7	.48	.46	.57	.83	.89	.93	.70	12"x12"	1.10	A53-33
	1"	C, D	.72	Same as above	1	.06	.34	.81	.93	.77	.63	.70	12"x12"	1.54	A52-351
					2	.22	.61	.70	.86	.74	.57	.75	12"x12"	1.54	A52-350
					7	.48	.47	.73	.84	.79	.60	.70	12"x12"	1.54	A52-349

NOTE 1. Perforated 484 holes per sq. ft., 11/64" diameter.

NOTE 2. Factory painted two coats, face and bevels. Also furnished, factory painted, with special paint finish giving "C" flame-resistance rating.

DETROIT STEEL PRODUCTS COMPANY

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
FENESTRA ACOUSTIC PANELS															
Type "AD" Panel	Pad 1"	A		See Note 1	4	.35	.84	.81	.81	.74	.59	.80	16"x108"	Pad .34	A52-237
Type "C" Panel	Pad 3"	A		See Note 1	4	.30	.72	.99	.96	.75	.61	.85	16"x108"	Pad .50	A52-205
Type "D" Panel	Pad 1"	A		See Note 1	4	.19	.78	.65	.66	.71	.59	.70	16"x108"	Pad .34	A52-236
Type Holorib	Pad 1 1/4"	A		See Note 1	7	.39	.39	.68	.85	.75	.75	.65	18"x 96"	Pad .19	A52-235
Type AD and Std. AD	Pad 1"	A		See Notes 1 and 2	4	.52	.70	.63	.52	.49	.31	.60	16"x108"	Pad .34	A51-83
Type C and Std. C	Pad 3"	A		See Notes 1 and 2	4	.42	.51	.78	.61	.51	.41	.60	16"x108"	Pad .50	A51-125
Type D and Std. D	Pad 1"	A		See Notes 1 and 2	4	.47	.56	.46	.40	.43	.40	.45	16"x108"	Pad .34	A52-6

NOTE 1. All Fenestra Acoustical structural products are perforated with 1/8" diameter holes, staggered 25/64" on centers (approximately 1150 holes per sq. ft.). Products are shop painted after perforating. There is a 1/4" space between perforated metal surface and acoustical glass fiber pad. The depth of the unit varies with the structural requirements. Standard depths are: 1 1/2", 3", 4 1/2", 6" and 7 1/2".

NOTE 2. Perforated painted metal panels are alternated with non-perforated (standard) painted panels.

THE E. F. HAUSERMAN COMPANY

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
ACOUSTIC CEILING	3"	A	Note 1	Perforated metal Note 3	4	.66	.69	.94	.95	.76	.54	.85	3'-0"x9'-0" Note 2		A52-95
ACOUSTIWALL	2 3/4"	A	Note 1	Perforated metal Note 4	4	.49	.65	.86	.89	.74	.46	.80	18"x10'-0" Note 2		A52-94

NOTE 1. Color as selected, factory baked enamel.

NOTE 2. See current catalog for other standard unit sizes.

NOTE 3. Perforated steel face, airspace with 1" glass fibre board, 3/8" plaster wallboard, rock wool and unperforated back.

NOTE 4. Construction similar to Note 3 except 1/4" plaster wallboard.

INDUSTRIAL SOUND CONTROL, INCORPORATED

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE Note 1	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
SOUND METAL ACOUSTICAL PANELS Type A-3PP	3 1/2"	A		Perforated, both faces	4	.36	.74	.99	.94	.83	.79	.90	36"x96"		A52-230
Type F-4PS	4"	A		Perforated	4	.20	.72	.97	.88	.82	.73	.85	36"x96"		A52-231
Type A-6PS	6"	A		Perforated	4	.88	.71	.99	.93	.85	.79	.85	36"x96"		A52-232

NOTE 1. All perforated metal has 5/32" holes on 3/16" centers, staggered. Welded construction. Sound absorbing blanket, 4 1/4 lbs. per cu. ft.

JOHNS-MANVILLE SALES CORPORATION

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE Superscript numbers refer to footnotes	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
SANACOUSTIC Type KK Pad	2½"	A	.77	Perforated, enameled metal ¹	3	.29	.62	.96	.96	.95	.67	.85	12"x24"	Pad 1.13	A51-142
SANACOUSTIC Type KK Pad 50/50 Pattern	2½"	A	.77-.85	Perforated and unperforated, enameled metal ²	3	.38	.60	.66	.72	.53	.46	.65	12"x24"	Pad 1.17	A52-355
TRANSITE ACOUSTICAL PANELS	1⅜"	A	.73	Perforated ³ , painted	5	.09	.31	.91	.97	.83	.55	.75	24"x24"	Pad 1.25	A52-161
	2⅜"	A	.73	Same as above	8	.34	.65	.96	.99	.84	.54	.85	24"x24"	Pad 2.46	A52-162
SOUND ISOLATION BLANKET MK	1"			Muslin covered, unpainted	4	.14	.45	.90	.97	.89	.79	.80		1.25	A52-163
	2"			Same as above	4	.29	.65	.86	.97	.81	.82	.80		2.46	A52-164
FIBRETONE	½"	C, D	.78	Perforated ⁴ , painted ⁵	1	.08	.15	.58	.75	.78	.65	.55	12"x12"	.65	A53-6
					2	.06	.44	.50	.70	.79	.64	.60	12"x12"	.65	A53-5
	¾"	C, D	.78	Same as above	1	.14	.27	.73	.83	.78	.65	.65	12"x12"	.96	A53-13
					2	.15	.67	.57	.80	.83	.81	.70	12"x12"	.96	A53-12
	1"	C, D		Same as above	1	.20	.41	.82	.89	.81	.68	.75	12"x12"	1.20	A53-38
					2	.31	.67	.69	.84	.75	.69	.75	12"x12"	1.20	A53-37
PERMACOUSTIC	¾"	A	.78	Fissured, painted	1	.04	.21	.75	.88	.85	.78	.65	12"x12"	1.3	A51-98
					7	.56	.53	.60	.73	.88	.88	.70	12"x12"	1.3	A51-99
AIRACOUSTIC	½"	A		Unpainted	6	.11	.42	.43	.77	.84	.82	.60		.64	A52-165
	1"	A		Same as above	6	.17	.49	.76	.89	.94	.85	.75		1.21	A52-166

NOTE 1. Perforated, enameled metal pan backed with mineral wool sound-absorbing pad. Perforations are .068" diameter, 4608 holes per sq. ft. Thickness includes furring.

NOTE 2. One-half perforated, enameled pan backed with rock wool pads; one-half enameled metal, unperforated, un-backed. Perforations are .10" diameter, 1625 holes per sq. ft. Thickness includes furring.

NOTE 3. Holes through Transite ⅜" diameter, 600 per sq. ft.

NOTE 4. 484 holes per sq. ft., ⅜" diameter.

NOTE 5. When finished with flame-resistant paint, Fibertone has a flame-resistance rating of C as mounted for test and the light reflectance is .83.

NATIONAL GYPSUM COMPANY

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE Superscript numbers refer to footnotes	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
ACOUSTIFIBRE	1/2"	C, D	.80	Perforated ¹ , painted	1	.10	.20	.61	.76	.79	.75	.60	12"x12"	.67	A51-175
					2	.08	.57	.52	.66	.75	.78	.65	12"x12"	.68	A52-146
	5/8"		.80	Same as above	1	.07	.21	.68	.85	.78	.70	.65	12"x12"	.87	A52-149
					2	.13	.56	.57	.77	.84	.72	.70	12"x12"	.87	A52-148
	3/4"	C, D		Same as above	1	.15	.28	.77	.88	.84	.70	.70	12"x12"	1.03	A52-152
					2	.14	.67	.61	.86	.79	.71	.75	12"x12"	1.03	A52-151
					7	.40	.41	.56	.87	.91	.76	.70	12"x12"	1.03	A52-150
ECONACOUSTIC	1/2"		.77	Painted	1	.03	.13	.67	.77	.72	.72	.55	12"x12"	.43	A52-189
TRAVACOUSTIC	11/16"	A	.81	Fissured, painted	1	.08	.19	.72	.96	.77	.65	.65	12"x12"	1.36	A52-320
					7	.56	.58	.62	.78	.89	.96	.70	12"x12"	1.36	A52-324
	13/16"		.81	Same as above	1	.09	.29	.79	.87	.75	.68	.70	12"x12"	1.66	A52-322
	7/8"		.79	Same as above	7	.50	.50	.59	.77	.85	.75	.70	12"x12"	1.63	A52-323
ACOUSTIMETAL	2 1/2"	A	.72	Perforated, enameled, metal ²	3	.15	.57	.99	.97	.83	.65	.85	12"x24"	Pad 1.04	A51-165

NOTE 1. Perforated 484 holes per sq. ft., 3/16" diameter.

NOTE 2. Perforated, enameled metal pan backed with sound-absorbing mineral wool pad. Perforations are .109" diameter, 1024 per sq. ft. Thickness includes furring.

OWENS-CORNING FIBERGLAS CORPORATION

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE Superscript numbers refer to footnotes	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.			
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps							
FIBERGLAS ACOUSTICAL TILE TYPE TXW	1/2"	A	.77	Textured, painted ¹	1 2	.05 .08	.09 .16	.35 .48	.67 .86	.80 .88	.89 .75	.50 .60	12"x12" 12"x12"	.45 .45	A52-246 A52-245			
	3/4"			1 2 7	.03 .03 .51	.13 .23 .68	.69 .77 .80	.95 .99 .86	.94 .89 .90	.85 .83 .80	.70 .70 .80	12"x12" 12"x12" 12"x24"	.68 .70 .67	A52-274 A52-247 A52-275				
	1"			1 7	.04 .66	.31 .64	.85 .82	.99 .93	.89 .95	.70 .85	.75 .85	12"x12" 12"x24"	.96 .89	A52-276 A52-277				
	FIBERGLAS ACOUSTICAL TILE TYPE TXN	3/4"	A	.76	Textured, painted ²	1 7	.04 .57	.20 .72	.65 .82	.96 .91	.94 .92	.85 .83	.70 .85	12"x12" 12"x24"	.68 .72	A52-278 A52-279		
		FIBERGLAS ACOUSTICAL TILE TYPE PRW	1/2"	A	.83	Perforated ³ , painted	1 2	.10 .13	.10 .19	.49 .69	.99 .99	.77 .65	.58 .34	.60 .65	12"x12" 12"x12"	.50 .50	A52-252 A52-251	
	3/4"		1 2 7			.11 .03 .63	.11 .31 .71	.75 .93 .72	.99 .96 .79	.66 .65 .70	.34 .30 .42	.65 .70 .75	12"x12" 12"x12" 12"x24"	.82 .72 .86	A52-300 A52-248 A52-301			
FIBERGLAS CEILING BOARD	3/4"		A			.74	Textured, painted	7	.46	.65	.76	.90	.90	.88	.80	24"x48"	.48	A52-299
	1 1/4"		A			.70	Same as above	7	.71	.75	.85	.99	.96	.84	.90	48"x48"	.81	A52-249
FIBERGLAS SONO- FACED ACOUSTICAL TILE	Center Units	3/4"	A	.68	Membrane faced ⁴	1 7	.13 .53	.20 .62	.68 .77	.93 .88	.78 .77	.44 .46	.65 .75	12"x12" 12"x12"	.71 .66	A52-326 A52-327		
																	Border Units	3/4"
FIBERGLAS SONO- FACED CEILING BOARD	Center Units	3/4"	A	.69	Membrane faced ⁴	7	.56	.74	.76	.83	.78	.46	.80	23 3/4" x 47 3/4"	.52	A52-304		
																	Border Units	3/4"
FIBERGLAS COATED DUCT INSULATION	5/8"	A		Sized	6	.11	.46	.50	.68	.77	.78	.60	24"x48"	.30	A52-306			
																1"	A	

NOTE 1. Both face and beveled edge painted.

NOTE 2. Face painted, bevel unpainted.

NOTE 3. Perforated 196 holes per sq. ft., 3/16" diameter, 0.8" O.C.

NOTE 4. Thin plastic membrane facing cemented only to tile edges.

NOTE 5. Thin plastic membrane facing cemented to tile face and edges.

PIONEER DIVISION — THE FLINTKOTE COMPANY

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE Superscript numbers refer to footnotes	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
FLINTKOTE ACOUSTICAL TILE TYPE RS	½"	C, D	.78	Perforated ¹ , painted	1	.06	.17	.57	.61	.66	.78	.50	12"x12"	.53	A52-317
	¾"	C, D	.77	Same as above	1	.14	.26	.81	.90	.79	.65	.70	12"x12"	.76	A52-187
					2	.17	.59	.66	.87	.83	.63	.75	12"x12"	.76	A52-186
	1"	C, D	.77	Same as above	1	.10	.24	.98	.96	.72	.61	.75	12"x12"	.94	A52-66
					2	.17	.64	.80	.99	.75	.59	.80	12"x12"	.89	A52-188
	1"			Perforated ² , painted	2	.25	.73	.84	.98	.80	.68	.85	24"x24"	1.28	A52-100
	1"			Perforated ¹ , painted	2	.17	.71	.78	.95	.78	.72	.80	24"x48"	1.00	A52-101
	1¼"	C, D		Same as above	1	.10	.47	.99	.98	.76	.64	.80	12"x12"	1.06	A52-103
					2	.17	.64	.99	.96	.80	.61	.85	12"x12"	1.06	A52-102
FLINTKOTE PERFORATED METAL ACOUSTICAL TILE	2½"	A		Perforated, enameled metal ³	3	.34	.66	.83	.94	.81	.81	.80	12"x24"	Pad 1.12	A52-67

NOTE 1. 484 holes per sq. ft., ⅜" diameter.

NOTE 2. 529 holes per sq. ft., ⅜" diameter.

NOTE 3. Perforated enameled metal, cross scored to simulate 12" x 12" tile. 1013 holes per sq. ft., .109" diameter. Thickness includes furring.

SIMPSON LOGGING COMPANY

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE Superscript numbers refer to footnotes	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
SIMPSON ACOUSTICAL TILE	1/2"	C, D	.78	Perforated ¹ , painted ²	1	.03	.17	.69	.80	.79	.76	.60	12"x12"	.72	A52-119
					2	.03	.58	.53	.70	.75	.74	.65	12"x12"	.72	A52-118
	5/8"	C, D	.78	Same as above	1	.03	.24	.71	.80	.84	.77	.65	12"x12"	.82	A52-121
					2	.12	.58	.53	.76	.84	.75	.70	12"x12"	.82	A52-120
	3/4"	C, D	.77	Same as above	1	.03	.26	.77	.88	.98	.69	.70	12"x12"	.94	A52-123
					2	.13	.58	.56	.82	.86	.71	.70	12"x12"	.94	A52-122
					7	.31	.39	.57	.83	.90	.83	.70	12"x12"	.94	A52-126
	1"	C, D	.76	Same as above	1	.17	.42	.89	.97	.77	.56	.75	12"x12"	1.45	A52-125
					2	.26	.63	.76	.93	.77	.59	.75	12"x12"	1.45	A52-124
SIMPSON METAL ACOUSTICAL UNITS	2 1/2"	A		Perforated, enameled metal ³	3	.44	.53	.82	.99	.99	.73	.85	12"x24"	Pad 1.07	A52-117
SIMPSON FISSURED MINERAL TILE	1 1/16"	A	.79	Fissured, painted	1	.03	.23	.70	.90	.77	.78	.65	12"x12"	1.21	A52-127
SIMPSON ACOUSTICAL ROOF SLAB	2"			Perforated ⁴ , painted	7	.38	.30	.42	.63	.79	.93	.55	2'x8'		A52-310

NOTE 1. Perforated 484 holes per sq. ft., 3/16" diameter.

NOTE 2. Painted two coats, face and bevels.

NOTE 3. Perforated, enameled metal. 1105 holes per sq. ft., .093" diameter. Thickness includes furring.

NOTE 4. Perforated 525 holes per sq. ft., 3/16" diameter.

UNITED STATES GYPSUM COMPANY

MATERIAL	Thick- ness	Flame Resist- ance	Light Reflec- tion	SURFACE Superscript numbers refer to footnotes	Mount- ing	COEFFICIENTS						NRC	Unit Size Tested	Wt. Lbs. per Sq. Ft.	Test No.
						125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps				
ACOUSTONE F	1 1/16"	A	.81	Fissured, painted	1 7	.05 .44	.17 .53	.64 .53	.95 .83	.91 .86	.79 .81	.65 .70	12"x12" 12"x24"	1.19 1.16	A51-146 A52-225
	7/8"	A	.81	Same as above	1 7	.03 .55	.30 .54	.87 .72	.94 .90	.81 .96	.69 .94	.75 .80	12"x12" 12"x24"	1.56 1.56	A52-330 A52-81
MOTIF'D ACOUSTONE "Striated" PATTERN No. 19	1 1/16"	A	.71	Textured, painted	1	.08	.22	.61	.91	.84	.82	.65	12"x12"	1.06	A52-83
	7/8"	A	.71	Same as above	1 7	.13 .60	.27 .69	.79 .62	.90 .80	.81 .96	.63 .98	.70 .75	12"x12" 12"x12"	1.40 1.40	A53-30 A53-29
AUDITONE PERFORATED	1/2"	C, D	.76	Perforated ¹ , painted	1 2	.09 .09	.28 .56	.69 .46	.73 .65	.73 .72	.68 .74	.60 .60	12"x12" 12"x12"	.76 .78	A52-158 A52-325
	3/4"	C, D	.79	Same as above	1 2	.19 .13	.33 .62	.72 .58	.78 .86	.74 .83	.62 .80	.65 .70	12"x12" 12"x24"	1.11 .95	A52-58 A52-241
	1"	C, D	.79	Same as above	1 2	.16 .19	.38 .49	.77 .73	.86 .92	.75 .77	.61 .59	.70 .75	12"x12" 12"x24"	1.40 1.40	A52-54 A52-243
	3/4"	C, D	.75	Slotted, painted	1 2	.14 .17	.32 .60	.71 .56	.76 .74	.77 .84	.65 .82	.65 .70	12"x12" 12"x24"	.90 .84	A52-60 A52-240
	1"	C, D	.76	Same as above	1 2	.16 .18	.27 .56	.74 .56	.80 .78	.85 .87	.75 .79	.65 .70	12"x12" 12"x24"	1.32 1.34	A52-244 A52-242
	2 1/2"	A	.76	Perforated, enameled metal ²	3	.22	.64	.98	.94	.93	.68	.85	12"x24"	Pad 1.07	A51-147
PERFORATED ASBESTOS BOARD	1 1/16"	A		Perforated ³ , unpainted	Note 4	.30	.63	.97	.91	.63	.33	.80	24"x24"	Pad 1.21	A53-17

NOTE 1. Perforated 484 holes per sq. ft., 3/16" diameter.

NOTE 2. Perforated enameled metal, 1105 holes per sq. ft., .093" diameter. Thickness includes furring.

NOTE 3. Perforated 2209 holes per 4 sq. ft., 3/16" diameter.

NOTE 4. Perforated cement-asbestos board, 3/16" thick, backed by 1 1/4" mineral wool pad with 1 1/2" airspace behind.

COEFFICIENTS OF GENERAL BUILDING MATERIALS

Complete tables of coefficients of the various materials that normally constitute the interior finish of rooms may be found in the various books on architectural acoustics. The following short list will be useful in making simple calculations of the reverberation in rooms.

<i>Material</i>	<i>Coefficients</i>		
	125 cps	500 cps	2000 cps
Brick wall, painted012	.017	.023
Same, unpainted024	.03	.049
Carpet, unlined09	.20	.27
Same, felt lined11	.37	.27
Fabrics, hung straight			
Light, 10 ozs. per sq. yd.04	.11	.30
Medium, 14 ozs. per sq. yd.06	.13	.40
Heavy, draped, 18 ozs. per sq. yd.10	.50	.82
Floors			
Concrete or terrazzo01	.015	.02
Wood05	.03	.03
Linoleum, asphalt, rubber or cork tile on concrete03-.08	
Glass035	.027	.02
Marble or Glazed Tile01	.01	.015
Openings			
Stage, depending on furnishings25-.75	
Deep balcony, upholstered seats50-1.00	
Grills, ventilating15-.50	
Plaster, gypsum or lime, smooth finish on tile or brick013	.025	.04
Same, on lath02	.03	.04
Plaster, gypsum or lime, rough finish on lath039	.06	.054
Wood Panelling08	.06	.06

ABSORPTION OF SEATS AND AUDIENCE

	125 cps	500 cps	2000 cps
Audience, seated, units per person, depending on character of seats, etc.	1.0-2.0	3.0-4.3	3.5-6.0
Chairs, metal or wood15	.17	.20
Wood Pews40	
Pew Cushions (without pews)75-1.1	1.45-1.90	1.4-1.7
Theatre and Auditorium Chairs			
Wood veneer seat and back25	
Upholstered in leatherette		1.6	
Heavily upholstered in plush or mohair		2.6-3.0	

Alphabetical List of Trade Names and Marks

For convenient reference, the trade marks of materials appearing in this bulletin are listed below in alphabetical order together with the name of the producer. Some of these trade marks apply to several types of materials which appear in the appropriate Summary Tables and also in the Producer's Table. The page number below indicates the location of the Producer's Table.

TRADE NAME	PRODUCER	Page
ACOUSTEEL*	The Celotex Corporation	10
ACOUSTI-CELOTEX*	The Celotex Corporation	10
ACOUSTIC CEILINGS	The E. F. Hauserman Company	13
ACOUSTI-LINE*	The Celotex Corporation	10
ACOUSTIFIBRE*	National Gypsum Company	15
ACOUSTIMETAL*	National Gypsum Company	15
ACOUSTONE*	United States Gypsum Company	19
ACOUSTI-WALL*	The E. F. Hauserman Company	13
AIRACOUSTIC*	Johns-Manville Sales Corporation	14
ARMSTRONG PERFORATED ASBESTOS BOARD PANELS	Armstrong Cork Company	9
ARRESTONE*	Armstrong Cork Company	9
AUDITONE*	United States Gypsum Company	19
CELOTEX* PERFORATED ASBESTOS BOARD PANEL	The Celotex Corporation	10
CELOTONE*	The Celotex Corporation	10
CERTILE*	Certain-Teed Products Corporation	11
CORKOUSTIC*	Armstrong Cork Company	9
CUSHIONTONE*	Armstrong Cork Company	9
ECONACOUSTIC*	National Gypsum Company	15
FENESTRA* ACOUSTIC PANELS	Detroit Steel Products Company	12
FIBERGLAS* ACOUSTICAL TILE	Owens-Corning Fiberglas Corp.	16
FIBERGLAS* CEILING BOARD	Owens-Corning Fiberglas Corp.	16
FIBERGLAS* COATED DUCT INSULATION	Owens-Corning Fiberglas Corp.	16
FIBERGLAS* SONOFACED* ACOUSTICAL TILE	Owens-Corning Fiberglas Corp.	16
FIBERGLAS* SONOFACED* CEILING BOARD	Owens-Corning Fiberglas Corp.	16
FIBRETONE*	Johns-Manville Sales Corporation	14
FIR-TEX	Dant & Russell Sales Co.	11
FLINTKOTE ACOUSTICAL TILE	Pioneer Division, The Flintkote Co.	17
FLINTKOTE PERFORATED METAL ACOUSTICAL TILE	Pioneer Division, The Flintkote Co.	17
HOLORIB* ACOUSTIC PANEL	Detroit Steel Products Company	12
MINATONE*	Armstrong Cork Company	9
MOTIF'D ACOUSTONE*	United States Gypsum Company	19
PERFATONE*	United States Gypsum Company	19
PERMACOUSTIC*	Johns-Manville Sales Corporation	14
Q-T DUCTLINER*	The Celotex Corporation	10
SANACOUSTIC*	Johns-Manville Sales Corporation	14
SIMPSON* ACOUSTICAL ROOF SLAB	Simpson Logging Company	18
SIMPSON* ACOUSTICAL TILE	Simpson Logging Company	18
SIMPSON* METAL ACOUSTICAL UNITS	Simpson Logging Company	18
SIMPSON* FISSURED MINERAL TILE	Simpson Logging Company	18
SOUND ISOLATION BLANKET	Johns-Manville Sales Corporation	14
SOUND METAL ACOUSTICAL PANELS	Industrial Sound Control, Inc.	13
TRANSITE* ACOUSTICAL PANELS	Johns-Manville Sales Corporation	14
TRAVACOUSTIC*	National Gypsum Company	15
TRAVERTONE*	Armstrong Cork Company	9

*Trade Mark registered, U. S. Patent Office



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